CLAIMS:

1. A computer-implemented method facilitating identification of a digital signal, the method comprising:

obtaining a digital signal; and

deriving an identification value representative of the digital signal such that perceptually distinct digital signals result in identification values that are approximately independent of one another and perceptually same digital signals result in identical identification values.

2. A computer-implemented method as recited in claim 1, wherein the digital signals are digital audio signals.

3. A computer-implemented method as recited in claim 1, wherein the identification value is a hash value.

4. A computer-implemented method as recited in claim 1 further comprising storing the identification value in association with the digital signal.

5. A computer-implemented method as recited in claim 1 further comprising indexing the digital signal using the identification value.

6. A computer-implemented method as recited in claim 1 further comprising watermarking the digital signal using, in part, the identification value to produce a watermarked digital signal.

7. A computer-implemented method as recited in claim 1 further comprising comparing the identification value with another identification value derived from another digital signal.

8. A computer-implemented method as recited in claim 1 further comprising comparing identification values of two digital signals to determine if such values substantially match.

9. A computer-implemented method as recited in claim 8 further comprising indicating whether such values substantially match.

10. A computer-readable medium having computer-executable instructions that, when executed by a computer, performs the method as recited in claim 1.

11. A computer-implemented method for hashing a digital signal, comprising:

transforming the digital signal into a digital signal transform;

randomly dividing the digital signal transform into multiple chunks, each chunk containing signal data;

averaging, for each of the chunks, the signal data to produce corresponding chunk averages;

generating, based in part on the chunk averages, an exponential distribution having multiple distinct quantization levels;

randomly rounding each of the chunk averages to one of the quantization levels to produce rounded values; and

hashing a composite of the rounded values.

12. A computer-implemented method as recited in claim 11, wherein the digital signals are digital audio signals.

13. A computer-implemented method as recited in claim 11, wherein the transforming is performed according to a MCLT technique.

14. A computer-implemented method as recited in claim 11, wherein the dividing comprises forming hierarchical levels of overlapping chunks.

15. A computer-implemented method as recited in claim 11, wherein the averaging comprises computing a variance of the pixel data in cases where the chunk average is approximately zero.

16. A computer-implemented method as recited in claim 11, wherein the hashing comprises processing the rounded values to produce an intermediate hash value such that for perceptually distinct digital signals, the intermediate hash values differ approximately 60% of the time and for perceptually same digital signals, the intermediate hash values agree in all but approximately 20% of the time.

17. A computer-implemented method as recited in claim 11, wherein the hashing comprises processing the rounded values using a Reed-Müller error correction code decoder.

18. A computer-implemented method as recited in claim 11, wherein the hashing comprises processing the rounded values using a Reed-Müller error correction code decoder with an exponential pseudo-random norm.

19. A computer-implemented method as recited in claim 11, wherein the hashing produces an intermediate hash value, further comprising reducing a size of the intermediate hash value via an error correction process.

20. A computer-implemented hashing method, comprising:

computing a hash value representative of a digital signal such that perceptually distinct digital signals result in hash values that are approximately independent of one another and perceptually same digital signals result in identical hash values; and

storing the hash value in relationship with the digital signal.

21. A computer-implemented method as recited in claim 20, wherein the digital signals are digital audio signals.

22. A computer-implemented hashing method, comprising:

computing a hash value representative of a digital signal such that perceptually distinct digital signals result in hash values that are approximately independent of one another and perceptually same digital signals result in identical hash values;

storing the hash value in relationship with the digital signal;

watermarking the digital signal using, in part, the hash value to produce a watermarked digital signal;

subsequently distributing the watermarked digital signal over a network;

collecting a digital signal from a remote site on the network;

computing a hash value of the digital signal collected from the remote site;

comparing the hash value of the collected digital signal with the stored hash value; and

identifying the collected digital signal as a pirated version of the digital signal if the hash values match.

23. A computer-implemented method as recited in claim 22, wherein the digital signals are digital audio signals.

24. A computer-implemented hashing method, comprising:

computing a hash value representative of a digital signal; and

watermarking the digital signal with a watermark derived, at least in part, from the hash value.

25. A computer-implemented method as recited in claim 24, wherein the digital signals are digital audio signals.

26. A system for processing digital signals, comprising:

a digital signal hashing unit to compute a hash value representative of a digital signal such that perceptually distinct digital signals result in hash values that are approximately independent of one another and perceptually same digital signals result in identical hash values; and

a storage to hold the hash values.

27. A system for processing digital signals, comprising:

a digital signal hashing unit to compute a hash value representative of a digital signal such that perceptually distinct digital signals result in hash values that are approximately independent of one another and perceptually same digital signals result in identical hash values; and

a watermark encoder to watermark the digital signal using, in part, the hash value to produce a watermarked digital signal.

28. A computer-readable medium having computer-executable instructions, which when executed on a processor, direct a computer to:

compute a hash value representative of a digital signal such that perceptually distinct digital signals result in hash values that are approximately independent of one another and perceptually same digital signals result in identical hash values; and

store the hash value in relationship with the digital signal.

29. A computer-implemented method for recognizing a digital signal, the method comprising:

obtaining a digital signal;

deriving a categorization value representative of the digital signal so that perceptually similar digital signals having proximally similar categorization values.

30. A computer-implemented method as recited in claim 29, wherein the digital signals are digital audio signals.

31. A method as recited in claim 29 further comprising comparing categorization value of a digital signal to determine if such value is proximally near categorization values of a group of digital signals having proximally clustered categorization values.

32. A method as recited in claim 31 further comprising grouping the digital signal with the group of digital signals if the categorization value of such body is proximally near the categorization values of the group.

33. A method as recited in claim 29, wherein the categorization value is a hash value.

34. A computer-readable medium having computer-executable instructions that, when executed by a computer, performs the method as recited in claim 29.

35. A computer-readable medium having stored thereon a data structure, comprising:

a first data field containing a digital signal;

a second data field derived from the first field by deriving an identification value representative of the digital signal such that perceptually distinct digital signals result in identification values that are approximately independent of one another and perceptually same digital signals result in identical identification values;

a third data field functioning to delimit the end of the data structure.

36. A computer-readable medium having stored thereon a data structure, comprising:

a first data field containing a digital signal;

a second data field derived from the first field by deriving a categorization value representative of the digital signal so that perceptually similar digital signals having proximally similar categorization values;

a third data field functioning to delimit the end of the data structure.